

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An ink jet recording head driving method, the ink jet recording head having at least one ~~nozzles~~ nozzle and at least one ~~correspondingly~~ corresponding pressure generating chamber and a piezoelectric actuator corresponding thereto, said process comprising:

scanning said ink jet recording head in a first direction while simultaneously generating a plurality of uniform drive waveform signals, wherein a different plurality of uniform drive waveform signals are generated for immediately adjacent scans;

selecting for said nozzle only one or none of said plurality of uniform drive waveform signals; and

applying said selected uniform drive waveform ~~signals~~ signal to the respective piezoelectric actuator corresponding to said nozzle, said plurality of uniform drive waveform signals are selected and generated at the time of said scan ~~scanning~~ in the first direction so that dots with a plurality of gray scale values are generated.

2. (Currently Amended) An ink jet recording head driving method, the ink jet recording head having at least one nozzle and a pressure generating chamber and a piezoelectric actuator corresponding thereto, said process comprising:

performing a scan of ~~scanning~~ said ink jet recording head in a first direction while simultaneously generating a plurality of uniform drive waveform signals;

selecting for said nozzle only one or none of said plurality of uniform drive waveform signals; and

applying said selected uniform drive waveform ~~signals~~ signal to the piezoelectric actuator corresponding to said nozzle, said plurality of uniform drive waveform signals are selected and generated at the time of said scanning in the first direction so that dots with a plurality of gray scale values are generated, characterized in that at least one of said generated plurality of uniform drive waveform signals is different from a uniform drive waveform signal generated during ~~a an adjacent scan-previously executed dot forming process.~~

3. (Previously Presented) The ink jet recording head driving method according to claim 1, characterized in that uniform drive waveform signals for discharging ink droplets with a large jet amount of ink and uniform drive waveform signals for discharging ink droplets with a small jet amount of ink are generated simultaneously.

4. (Previously Presented) The ink jet recording head driving method according to claim 1, characterized in that uniform drive waveform signals for discharging ink droplets with a large jet amount of ink and uniform drive waveform signals for discharging ink droplets with a small jet amount are alternately generated.

5. (Previously Presented) The ink jet recording head driving method claim 1, characterized in that said dot forming process is executed at least twice on a same place of said recording medium.

6. (Previously Presented) The ink jet recording head driving method according to claim 5, characterized in that during said dot forming process, a second

nozzle positioned at a different place from the nozzle used during a previously executed dot forming process pass the place opposite the same place of said recording medium.

7. (Previously Presented) The ink jet recording head driving method according to claim 5, characterized in that during the dot forming process, a second nozzle positioned at the same place as the nozzle used during the previously executed dot forming process pass the place opposite the same place of said recording medium.

8. (Previously Presented) The ink jet recording head driving method according to claim 6, characterized in that the combination of uniform drive waveform signals is determined on the basis of a number of times of said dot forming process is performed and the number of times the same or a different nozzle passes the place opposite the same place of said recording medium.

9. (Previously Presented) The ink jet recording head driving method according to claim 8, characterized in that the number of times the dot forming process is performed is determined based on a high-speed printing mode that is for printing in a high-speed and a high-quality image mode.

10. (Currently Amended) An ink jet recording head driving circuit for ~~an~~ the ink jet recording head having a plurality of nozzles and a plurality of pressure generating chambers and corresponding piezoelectric actuators corresponding thereto, said ink jet recording head driving circuit in comprising:

recording means for recording uniform drive waveform information for uniform drive waveform signals;

waveform generating means for simultaneously generating a plurality of uniform drive waveform signals based on said uniform drive waveform information read from said recording means for a scan of the ink jet recording head, wherein the waveform generating means generates a different plurality of uniform drive waveform signals for adjacent scans;

control means for moving said ink jet recording head and selecting, for each of said plurality of nozzles, any one or none of the plurality of uniform drive waveform signals; and

uniform drive means for applying said uniform drive waveform signal to said piezoelectric actuators by selecting none or only one of a plurality of said uniform drive waveform signals output from said uniform drive generating means generated at the time of said scanning in the first direction, so that dots with a plurality of gray scale values are generated.

11. (Currently Amended) An ink jet recording head driving circuit for an ink jet recording head having a plurality of nozzles and a plurality of pressure generating chambers and corresponding piezoelectric actuators corresponding thereto, said ink jet recording head driving circuit in comprising:

recording means for recording uniform drive waveform information for uniform drive waveform signals;

waveform generating means for simultaneously generating a plurality of uniform drive waveform signals based on said uniform drive waveform information read from said recording means, wherein the waveform generating means generates a different plurality of uniform drive waveform signals for adjacent scans;

control means for moving said ink jet recording head and selecting, for each of said plurality of nozzles, any one or none of the plurality of uniform drive waveform signals; and

uniform drive means for applying said uniform drive waveform signal to said piezoelectric actuators by selecting none or only one of a plurality of uniform drive waveform signals output from said uniform drive generating means generated at the time of said scanning in the first direction so that dots with a plurality of gray scale values are generated, characterized in that said waveform generating means generates at least one uniform drive waveform signal that is different from any of a plurality of uniform drive waveform signals generated ~~at a~~ during an adjacent ~~previous~~ scanning of said ink jet recording head in said first direction.

12. (Previously Presented) An ink jet recording head driving circuit according to claim 10, characterized in that said waveform generating means simultaneously generates uniform drive waveform signals for discharging ink droplets with a large amount of ink and uniform drive waveforms for discharging ink droplets with a small amount of ink, in combination.

13. (Previously Presented) An ink jet recording head driving circuit according to claim 10, characterized in that said waveform generating means alternately generates a plurality of uniform drive waveform signals for discharging ink droplets with a relatively large amount of ink and uniform drive waveform signals for discharging a relatively small amount of ink at every scanning of said ink jet recording head in said first direction.

14. (Previously Presented) An ink jet recording head driving circuit according to claim 10, characterized in that said control means selects said uniform drive waveforms signals for execution at least two times in a same place of said recording medium.

15. (Previously Presented) The ink jet recording head driving circuit according to claim 14, characterized in that said control means makes nozzles, which are positioned at a different place from the nozzles used during the scanning of the ink jet recording head in the first direction, pass the place opposite the first place of said recording medium.

16. (Previously Presented) The ink jet recording head driving circuit according to claim 14, characterized in that said control means makes nozzles, which are positioned at the same place as the nozzles used for scanning of said ink jet recording head in the first direction, pass the place opposite the same place of said recording medium.

17. (Previously Presented) The ink jet recording head driving circuit according to claim 15, characterized in that said control means selects said uniform drive waveform signals on the basis of supplied data.

18. (Previously Presented) The ink jet recording head driving circuit according to claim 17, characterized in that a combination of uniform drive waveform signals is determined on the basis of a number of times said ink jet recording head scans and a number of times a same or different nozzle passes a place opposite the same place of said recording medium.

19. (Previously Presented) The ink jet recording head driving circuit according to claim 18, characterized in that the number of times said ink jet recording head scans and the number of times whereof the same or different nozzle passes the place opposite and the same place of said recording medium is determined on the basis of a high-speed printing mode for printing a high-speed and a high-quality image.

20. (Previously Presented) The ink jet recording head driving circuit according to claim 15, characterized in that said control means determines a number of times said ink jet recording head scans in the first direction and a number of times same or a different nozzle passes the place opposite the same place of said recording medium on the basis of a high-speed printing mode, determines a combination of uniform drive waveform signals selected and generates said waveform selecting data on the basis of the determined combination of said uniform drive waveform signals.